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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/554,416

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Jurek Dabrowski

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EXAMINER

LEE, BENNY T

ART UNIT

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2817

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/554,416	Applicant(s) DABROWSKI ET AL.	
	Examiner Benny Lee	Art Unit 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7; 8-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>24 Oct 2005, 10 Jan 2006 & 10 May 2007</u> . | 6) <input type="checkbox"/> Other: _____ |

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35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms, which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: Page 4, line 2, note that "said" should be rewritten as --the-- for idiomatic clarity; line 10, note that "equalisation" should be rewritten as --equalization-- for an appropriate spelling. Page 7, line 17, note that --first dielectric layer 1, a second dielectric layer 2 and a third dielectric layer 3-- is suggested for clarity of description; line 28, note that --a first line 8 and a second line 9-- is suggested for clarity of description; line 29, note that --first conductive layer 4 and the third conductive layer 6-- is suggested for clarity of description. Page 7, line 20 & page 8, line 15, note that --a first conductive layer 4, second conductive layer 5, third conductive layer 6 and fourth conductive layer 7-- is suggested for clarity of description; lines 16, 17, 18, 19, note that --first ground plane 10, 10', second ground plane 11, 11', third ground plane 12, 12'-- is suggested for clarity of description; line 16, note that "fourth 13 ground plane" should be rephrased as --fourth ground plane 13-- for clarity of description. Page 9, lines 10, 11, note that --first ground plane 10, second ground plane 11, and third ground plane 12-- is suggested for clarity of description. Page 10, line 20 & page 10, line 12, note that --line-- should be inserted between "first" & "8" for clarity of description. Page 11, line 11, note that a --,-- should be inserted after "layer 6" for grammatical clarity; line 17, note that --the first dielectric layer 1 and the second dielectric layer 2-- is suggested for clarity of description. Page 12, line 2, note that --the first region 10 and the second region 10'-- is suggested for clarity. Page 17, line 12, note that --figs. 14a-14c-- is suggested for clarity.

The disclosure is objected to because of the following informalities: Page 3, line 7, note that --OF THE INVENTION--should be inserted after “SUMMARY” for consistency with PTO guidelines. Page 4, line 11, note that “suitable values of (ii) the coupling level” is vague in meaning and needs clarification. Page 5, lines 3, 4, note that reference to “the former” is vague in meaning and needs clarification; line 21, note that “it” should reference the intended feature. Page 7, line 12, note that --OF THE INVENTION-- should be inserted after “DETAIL DESCRIPTION” for consistency with PTO guidelines. Page 9, lines 19, 20, note that it is unclear whether “in a direction perpendicular to the ground planes” is a proper characterization of “tuning ground plane 11”; line 27, note that --as shown in fig. 3-- should be inserted after “coupling” for clarity of description; line 29, note that --(see fig. 3)-- should be inserted after “17” for clarity of description. Page 10, line 9, note that --C-- should be inserted after “coefficients” for clarity of description; line 14, note that --as shown in fig. 4B-- should be inserted after “material” and --as shown in the curves of fig. 4-- should be inserted prior to “kc”, respectively for clarity of description. Page 12, line 8, note that parameter “(s1)” needs to be associated with the drawing figure in which it appears for clarity of description. Page 13, lines 15, 18, 20 and page 17, line 13, note that parameters “ ϵ_{effc} ” & “ ϵ_{effpi} ” need to be strictly defined in the specification. Page 13, lines 25, 26, note that reference to “some of the latter” is vague in meaning and needs clarification. Page 14, line 8, note that “from the latter” needs to clearly identify the intended feature. Page 17, line 13, note that --(see fig. 14b)-- should be inserted after “kC” for clarity of description; lines 25, 26, note that reference to “distance 24 between the ground plane 13 and ... dielectric layer 3” is vague in meaning and needs clarification. Note that with respect to the reference labels appearing in each drawing figures,

applicants' should review the specification description of those drawing figures to make sure that each labeled element has been corresponding described in the specification, especially those reference labels which are unique to a particular drawing figure, such as to provide completeness and clarity of description. Appropriate correction is required.

The drawings are objected to because of the following: In figs. 1 & 2, note that these drawing figures need to be labeled as --PRIOR ART-- for an appropriate characterization; In fig. 9, note that for the "via" on the right hand side, the reference label "9" should correctly be --19--; In fig. 6a, note that reference labels --15-- & --17-- need to be provided such as to be commensurate with the specification description of fig. 6a.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

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corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claims 1-7; 8-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, note that reference to “the propagated wave” lacks strict antecedent basis.

In claim 5, note that it is unclear how “at least two conductive layers” relates to any of the conductive structures (e.g. ground plane, first line, second line, etc) recited in claim 1. Clarification is needed.

In claim 8, note that it is unclear what feature is intended by the recitation of “it”. Clarification is needed.

The following claims have been found to be objectionable for reasons set forth below:

In claims 2, 9, note that --respective-- should be inserted prior to “width” for an appropriate characterization.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4, 5; 8, 9, 11 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Ralph.

Ralph discloses a coupler (39) comprising: coupled lines (e.g. circuit lines 80, 81) capacitively and inductively coupled to each other through dielectric layer (44) interposed between coupling lines (80, 81), as described at column 4, lines 25-27; at least one ground plane (e.g. 70, 88), where the at least one ground plane is characterized as a “tuning ground plane” which is characterized of ground plane segments (e.g. 72) connected by links (e.g. 74). Note that the links may be cut (e.g. by a laser) as to disconnect the segments (72) and thereby providing compensating adjustment to the degree of coupling of the coupler (e.g. see column 4, line 64 to column 5, line 3). Note that since the coupling lines are selected and designed for operation as a 3 dB, 90 degree phase shift coupler, such coupling lines inherently are designed (e.g. length, width, spacing, etc) to be coupled over a quarter-wavelength distance, especially since such a coupling length would have been recognized by those of ordinary skill in the art as being conventional for such couplers. It should be noted that coupled line (e.g. 80) and the tuning ground plane (e.g. 70) are each on the same side relative to coupled line (e.g. 81).

Claims 1-3, 5; 8-10 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Scott et al.

Scott et al (e.g. Fig. 1) discloses a hybrid coupler (10) comprising: two electrically coupled line sections (16, 17) including conductive strips (e.g. 21, 31) disposed to be coupled along a longitudinal direction and having a spacing there between perpendicular to the longitudinal direction; at least one “tuning ground plane” (e.g. electrically conductive shield 71) that is spaced a distance from the conductive strips (21, 31) as best seen in Fig.2. As described at

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column 5, lines 9-11, by adjusting the width of the shield, the amount of compensating coupling between strips (21, 31) can be set or “tuned”. Note that as described at column 3, lines 38-44, the width and lateral spacing of the conductive strips can set to desired dimensions, thereby providing a desired coupling. As evident from the cross-section view in Fig. 2, a dielectric layer (61) is interposed between the conductive layer having the conductive strips (21, 31) and the conductive layer having the shield (71). Finally, note that, as known to those of ordinary skill in the art, for a hybrid coupler, the optimal coupling length (i.e. along the longitudinal direction) would have been nominally set at one-quarter wavelength.

Claims 1-3, 5; 8-10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Banba.

Banba (e.g. Fig. 1) discloses a four port directional coupler comprising: coupling lines (e.g. microstrip conductors 31, 32) having a coupling length of one-quarter wavelength along a longitudinal direction (e.g. see column 7, lines 25, 26) as well as respective perpendicularly oriented widths and spacing between the microstrip conductors (31, 32) to thereby provide the desired degree of coupling; at least one ground plane including ground plane conductor (e.g. 12) and a “tuning ground plane” (i.e. characterized by a floating potential conductor 50) which is spaced by a distance over the microstrip coupling conductors (31, 32), as described at column 6, lines 43, 44. Note that in operation, the floating potential conductor provides for an increase in a compensating electrostatic capacity (e.g. C_{12}) in the odd mode (e.g. see column 8, line 66 to column 9, line 5), thereby functioning to provide a “tuning” effect by increasing the coupling factor K (e.g. see column 9, line 68 to column 10, line 13). As evident from the cross-sectional view in Fig. 3, a dielectric layer (e.g. 22) is interposed between a conductive layer comprising

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microstrip conductors (31, 32) and a conductive layer comprising the floating potential conductor (50).

Any inquiry concerning this communication should be directed to Benny Lee at telephone number 571 272 1764.

B. Lee

**/BENNY LEE/
PRIMARY EXAMINER
ART UNIT 2817**